BTEC Assignment Brief

Qualification	Pearson BTEC Level 3 National Diploma in Civil Engineering Pearson BTEC Level 3 National Extended Diploma in Civil Engineering
Unit number and title	Unit 36: Public Health Engineering
Learning aim(s) (For NQF only)	Learning aim C: Examine the processes used to produce and distribute drinking water
Assignment title	Production and Distribution of Drinking Water
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You are working as a trainee civil engineer in a company specialising in public health engineering. The company provides design and build services to a range of clients. Currently, the management is working on an initiative to develop series of guidance documents across the whole organisation. These documents will be available to all employees via the company's intranet. The management has asked the Technical Team to develop three documents relating to drainage, sewage treatment, solid waste disposal and water quality and distribution. This is first of the three documents. These documents will cover the underpinning knowledge as well as application of such knowledge. The management require you to consider a site currently being developed to draw suitable context for various sections of the document. Though you have recently joined the company, your team leader has confidence in your abilities to produce these documents due to your positive attitude towards work. Details of the development are given below: The development has been proposed along the river bank after due consideration of flood levels over the last 125 years. The river is not used for navigation purposes currently. This is a residential development aiming to cater for the commuters. The development is few miles away from the nearest town and has no water and drainage utilities currently close by. The site has been used as a caravan site as well as by the travellers over a number of years. The site is almost flat in terms of its topography. There is a large expanse of land around the site which is low-lying. This area could be purchased or leased on subsidised rates from the owners if used to improve the environment. The preliminary site survey suggests that a lot of electronic equipment as well as construction waste has been dumped on site. Before the work on development can start, all this needs to be safely disposed of. There is evidence that the construction waste includes asbestos. Your company is considering making this as their signature

	sustainable development. They wish to make use of sustainable approaches to the drainage of both foul water and surface water. The company wants to explore innovative and sustainable solutions to water supply, solid waste management and disposal as well as sewage treatment. You will consider a cul-de-sac within the development to design below ground and surface water drainage systems. This cul-de-sac has twenty houses with an average household size of 3 persons. These are a mix of couples with young families as well as young executives sharing accommodation.
Task 1	Produce a document called *Guidance Document Production and Distribution of Drinking Water*, using a suitable format as suggested by your team leader. The document will contain illustrations, sketches, line diagrams, photos and any other relevant support materials. Within this well referenced document, include the following: a) Illustrated and appropriately referenced posters demonstrating your understanding of: i. Variety of sources which could be used for drinking water purposes. ii. How water could be treated for hardness? Include an explanation about nature hardness and what causes it. iii. How and why water is purified? Include reference to standards which helps to benchmark water as fit for drinking. b) With reference to the development, produce a detailed proposal to source, store and distribute drinking water to the development. Include: i. Source of water and how water would be drawn from the source. ii. How would you make the water fit for drinking? Provide a justification of your choice(s). Include sketches/illustrations as appropriate. iii. Design consideration for storage and distribution of water supported with credible sources of information. iv. Schematic diagrams to show various methods of storing and distributing water and justified final choices made. All the diagrams should include details of the components related to installation of distribution systems. c) Evaluate how availability of sources, purification, storage and distribution requirements impact on the supply of drinking water in a given

	situation.
Checklist of evidence required	Illustrated and appropriately referenced posters. The number of posters is to be negotiated with the tutor. An appropriately referenced word-processed document, using a suitable referencing style such as Harvard. Schematic diagrams showing how water will be stored and distributed including layout, components, fittings and suitable annotations justifying their use. Illustrations/sketches/concept designs to support the discussions Use of credible and range of resources.

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria you must show that you are able to:
C.P5	Explain the relationships between factors that influence the water purification process
C.P6	Explain the factors that contribute towards the use of different approaches to remove hardness from water.
C.M3	Discuss the influence of design factors in the selection of methods to purify and distribute drinking water in a given
C.D3	Evaluate how availability of sources, purification, storage and distribution requirements impact on the supply of drinking water in a given situation.

Sources of information to support you with this Assignment	**Books** Bartlett, R E. Public Health Engineering: Sewerage, Second Edition (CRC Press – 2003) ISBN 9780203210895 Chadderton D – Building Services Engineering, 6th Edition (Routledge, 2012) ISBN 978-0415699327 Greeno R and Hall F – Building Services Handbook, 9th Edition (Routledge, 2017) ISBN 978-1138244351 **Web resources** CIBSE Society of Public Health Engineers https://www.cibse.org/Society-of-Public-Health-Engineers-SoPHE
Other assessment materials attached to this Assignment Brief	*None*